REMARKS

I. Status of the Claims

Claims 1-59 are pending. Claims 3-6, 11-14, 16, 17, 19-21, 23, 32-35, 40-43, 45, 46, 48-50, and 52 are withdrawn.

II. Objections to the Specification

The specification has been objected to for (i) including an internal note that was not removed before submission of the application in paragraph [0052]. The specification has been amended to remove the internal note in paragraph [0052], Accordingly, Applicant's respectfully requests withdrawal of this objection.

III. Rejections under 35 U.S.C. § 112

Claims 1, 7, 9, 27, 30, 36, 38 and 56 are rejected as being indefinite for failing particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims have been amended to overcome the various objections and rejections under §112 in that the term "generally" has been replaced with the word "substantially" to better define the invention.

VI. Rejections under 35 U.S.C. § 102

Claims 1-2, 7-9, 15, 18 and 27 are rejected as being anticipated by Oikawa et al., United States Patent No. 4,320,292.

Claim 1, as amended, contains the functional statement:

"said at least one detector is operative to provide at least one output usable to determine said variable distance and said variable angle."

The Examiner has previously not given patentable weight to this feature of claim 1, as previously presented, on the basis that it was an intended use. Applicant submits that, as amended, this feature is now a definite functional feature of the detector output that defines the invention. Within the definition of the claim, as now presented, the detector output must contain sufficient information to enable the variable distance and the variable angle of the electromagnetic radiation beam emitter from the panel to be determined. Accordingly it is submitted that this aspect of the claim should be given patentable weight. This feature is not found in Oikawa. Therefore, claim 1 is clearly patentable and should be allowed. Claims 2, 7-9, 15, 18 and 27 depend from claim 1 and also should be allowable.

V. Rejections under 35 U.S.C. § 103

Claim 10 which depends from claim 1, is rejected as being unpatentable over Oikawa et al. based on the same reasoning applied to claim 1. Claim 10 is currently rejected under 35 U.S.C. 103(a) on the basis that it would be obvious to one of ordinary skill in the art to modify the light pen of Oikawa to provide a plurality of beams to improve the functionality and versatility of the overall system.

Applicant submits that one of ordinary skill in the art would understand from Oikawa that it is an essential part of the Oikawa teaching that the photodiode sensors work in a binary manner to provide a single signal in the x axis and a single signal in the y axis to determine the x-y coordinate of the impingement point of the light beam on the display. If a plurality of beams is used and these were to fall in different wave guides, then Oikawa would not be able to provide a binary output of position, because there would be multiple outputs detected. This would prevent a binary output from detecting the actual position of the impingement point and therefore the intention of a user. If

the multiple beams were to fall within the same wave guide, then Oikawa would produce exactly the same binary output as it would if a single light beam were to fall in that wave guide. This would make such a modification pointless to the extent that it would be dismissed by the person of ordinary skill in the art. Accordingly it is submitted that claim 10 is allowable over Oikawa.

Claims 22, 24-26 and 28-29 are rejected as being unpatentable over Oikawa et al., in view of Lipman et al., WO 2003/104965. These claims also depend directly or ultimately from claim 1. Therefore, they also are allowable.

Claim 30 is currently rejected under 35 U.S.C 103 as being un-patentable over Oikawa in light of Lipman. Claim 30 is the method analog of claim 1 and contains the same limitation discussed above relative to the detector output.

Oikawa teaches a screen having an x-y array of optical guides for directing light impinging on the screen to optical sensors along their edges. In one example the sensors of Oikawa convert the light into a binary signal chain that determines a co-ordinate position where the light is projected by the light pen. Oikawa therefore teaches determining the x-y position on the screen where the light from the light pen hits the screen. In another example, the Oikawa reference specifically states: "producing an electrical signal corresponding to a co-ordinate position on which said light beam is projected."

Accordingly, not only does Oikawa fail to teach employing an output of said at least one detector to determine variable distance and variable angle, as set forth in claim 30 (also in claim 1), but the signals produced by the sensors of Oikawa are not usable to determine the variable distance and variable angle.

The Examiner states that Lipman teaches a pen system to receive at least one output of at least one detector and to determine the variable distance and variable angle. It is the Examiner's position that it would have been obvious to one of ordinary skill in the art to modify the detection system of Oikawa to include the stylus and angle detection of Lipman.

Applicant submits that one of ordinary skill in the art would not consider it possible to modify the detection system of Oikawa to include the stylus and angle detection of Lipman and that these two references are not combinable for the following reasons:

Oikawa's disclosed apparatus relies for data upon singular or solitary states (described therein as "binary" or "ON/OFF") sensed by the discrete sensors along each axis, which are capable of determining a single "on" coordinate for each axis of sensors. That is, a single sensor in the x axis and a single sensor in the y axis will produce a binary signal, the x and y signal indicating the point of impingement of the light beam upon the screen. The light is guided in wave guides to the sensors associated with that x, or y, point of impingement. The use of a binary output from the sensors indicative of x-y coordinate positions eliminates all other data, for example, the strength of the signal received in different sensors. As there is no means of calculating the exact location of center point of impingement the resolution of the Oikawa device is very coarse (optical guide channel width = 9.5mm) and the light pen of Oikawa is designed to emit a signal only when pressed against the screen.

In contrast, Lipman teaches an apparatus that relies upon a continuity of variably-intense data corresponding to the elliptical shape of the input beam in order to determine any or all coordinates of the light source, including x, y, distance and angle.

Oikawa's apparatus seeks to increase resolution by EXCLUDING signal information surrounding, or other than on, the central X or Y coordinate. This is achieved by use of discrete channel guides and a "focused" light source: Oikawa states: With this construction, it is possible to identify the coordinate position of the light pen by means of ON-OFF states of the phototransistors with high accuracy", thus teaching away from the Lipman apparatus which seeks to increase resolution by INCLUDING signal information from the full light impingement spot representing the ellipse created by the intersection of the conical light beam and the input plane.

As the systems of the two references aim to increase their resolution by opposite methods of inclusion and exclusion of data, the skilled person would not attempt to modify Oikawa in light of Lipman as to do so would directly go against the teaching of Oikawa.

Also the two cited references teach diametrically opposed approaches to increasing resolution they are not practically combinable. Applicant therefore submits that claim 30 as now presented, is allowable over Oikawa in view of Lipman and favourable reconsideration is requested.

Claims 22 and 24 to 26 are currently rejected as unpatentable over Oikawa in light of Lipman. Each of these claims depends from claim 1. The above arguments in support of claim 30 detailing the incompatibility of Oikawa and Lipman in this regard apply mutatis mutandis to claims 22 and 24 to 26 since the present claim 1 also contains the same feature of claim 30 relative to the detector output.

Claim 28 which depends on claim 1 is currently rejected as un-patentable over Oikawa in light of Lipman. The above submissions in support of claims 1 and 30 detailing the incompatibility of Oikawa and Lipman further apply to determining a major and a minor axis of an elliptical impingement spot. Oikawa is exclusively concerned with isolating signals from single x and y

sensors so as to provide a binary coordinate signal. If the elliptical impingement spot of Lipman were to fall within a single wave guide ($9.5mm^2$), then a single binary output of position would be determined that would give no more information than if a single point spot of light hit the display of Oikawa. If in Lipman the elliptical spot fell over more than one wave guide, then multiple outputs would be produced, contrary to the Oikawa binary coordinate system.

Furthermore, even if signals were processed of more than one wave guide the only ratio that would be possible to achieve would be a multiple of the wave guide resolution, which is 9.5mm. A ratio based on such a resolution would not enable the determination of an angle of intersection between the beam and the panel within any tolerances that would provide a useful output. Accordingly a person of ordinary skill in the art would not seek to combine these two references and would consider them incompatible. It is therefore submitted that claim 28 is patentable over Oikawa in light of Lipman.

Claim 29, which depends from claim 1, is currently rejected as un-patentable over Oikawa in light of Lipman. The above submissions in support of claims 1 and 30 detailing the incompatibility of Oikawa and Lipman further applies to detecting variations in intensity of said electromagnetic radiation at different locations on an impingement spot defined by impingement of said beam on said panel, thereby to assist in determination of an angle of intersection between said beam and said panel. Oikawa discloses a binary system wherein on/off signals are used to determine an x-y coordinate of impingement. The measurement of variations in intensity is contradictory to the teaching of on/off binary signals EXCLUDING signal information surrounding or other than the central X or Y coordinate as required by Oikawa. Accordingly, a person of ordinary skill in the art

would not seek to combine these two references and would consider them incompatible. It is therefore submitted that claim 29 is patentable over Oikawa in light of Lipman.

Claims 31, 36-39, 44, 47, 51 and 53-58 depend directly or ultimately from claim 30 and are rejected for the same reasons as claims 2, 7-10, 15, 18, 22 and 26-29. It is submitted that claims 31, 36-39, 44, 47, 51 and 53-58 are allowable for substantially the same reasons presented above for claims 2, 7-10, 15, 18, 22 and 26-29.

CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance. Prompt and favorable action is requested.

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Respectfully submitted,

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